

10/513699

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PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

NEWS	1		Web Page for STN Seminar Schedule - N. America
NEWS	2	DEC 01	ChemPort single article sales feature unavailable
NEWS	3	APR 03	CAS coverage of exemplified prophetic substances enhanced
NEWS	4	APR 07	STN is raising the limits on saved answers
NEWS	5	APR 24	CA/CAPLUS now has more comprehensive patent assignee information
NEWS	6	APR 26	USPATFULL and USPAT2 enhanced with patent assignment/reassignment information
NEWS	7	APR 28	CAS patent authority coverage expanded
NEWS	8	APR 28	ENCOMPLIT/ENCOMPLIT2 search fields enhanced
NEWS	9	APR 28	Limits doubled for structure searching in CAS REGISTRY
NEWS	10	MAY 08	STN Express, Version 8.4, now available
NEWS	11	MAY 11	STN on the Web enhanced
NEWS	12	MAY 11	BEILSTEIN substance information now available on STN Easy
NEWS	13	MAY 14	DGENE, PCTGEN and USGENE enhanced with increased limits for exact sequence match searches and introduction of free HIT display format
NEWS	14	MAY 15	INPADOCDB and INPAFAMDB enhanced with Chinese legal status data
NEWS	15	MAY 28	CAS databases on STN enhanced with NANO super role in records back to 1992
NEWS	16	JUN 01	CAS REGISTRY Source of Registration (SR) searching enhanced on STN

NEWS EXPRESS MAY 26 09 CURRENT WINDOWS VERSION IS V8.4,
AND CURRENT DISCOVER FILE IS DATED 06 APRIL 2009.

NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS LOGIN Welcome Banner and News Items

Enter NEWS followed by the item number or name to see news on that specific topic.

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and other penalties.

* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 16:06:12 ON 09 JUN 2009

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.22	0.22

FILE 'REGISTRY' ENTERED AT 16:06:33 ON 09 JUN 2009

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STRUCTURE FILE UPDATES: 8 JUN 2009 HIGHEST RN 1154048-98-2

DICTIONARY FILE UPDATES: 8 JUN 2009 HIGHEST RN 1154048-98-2

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TSCA INFORMATION NOW CURRENT THROUGH January 9, 2009.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> file casreact

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.48	0.70

FILE 'CASREACT' ENTERED AT 16:06:38 ON 09 JUN 2009

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FILE CONTENT:1840 - 8 Jun 2009 VOL 150 ISS 24

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* CASREACT now has more than 16.5 million reactions *

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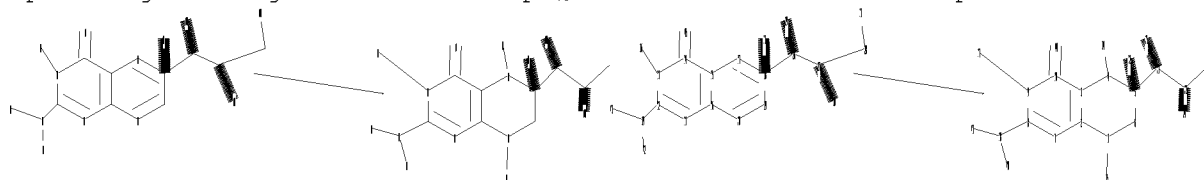
*

CASREACT contains reactions from CAS and from: ZIC/VINITI database (1974-1999) provided by InfoChem; INPI data prior to 1986; Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich; organic reactions, portions copyright 1996-2006 John Wiley & Sons, Ltd., John Wiley and Sons, Inc., Organic Reactions Inc., and Organic Syntheses Inc. Reproduced under license. All Rights Reserved.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>

Uploading C:\Program Files\Stnexp\Queries\10579106stereounspecific.str



chain nodes :
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
42 43 44 45
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
chain bonds :
1-35 4-34 5-21 5-32 8-38 9-37 10-44 12-39 13-36 14-45 18-26 18-33 21-22
21-25 22-23 22-24 26-27 26-29 27-28 27-30 28-31 38-40 38-41 39-42 39-43
ring bonds :
1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10 11-12 11-16 12-13 13-14
14-15 15-16 15-17 16-20 17-18 18-19 19-20
exact/norm bonds :
1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 8-38 9-10 10-44 11-12 11-16
12-13 12-39 13-14 14-15 14-45 21-25 22-24 26-29 27-30 28-31
exact bonds :
1-35 4-34 5-21 5-32 9-37 13-36 18-26 18-33 21-22 22-23 26-27 27-28
38-40 38-41 39-42 39-43
normalized bonds :
15-16 15-17 16-20 17-18 18-19 19-20
isolated ring systems :
containing 1 : 11 :

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS
28:CLASS 29:CLASS 30:CLASS 31:CLASS 32:CLASS 33:CLASS 34:CLASS 35:CLASS
36:CLASS 37:CLASS 38:CLASS 39:CLASS 40:CLASS 41:CLASS 42:CLASS 43:CLASS
44:CLASS 45:CLASS
fragments assigned product role:
containing 1

<12/04/2007>

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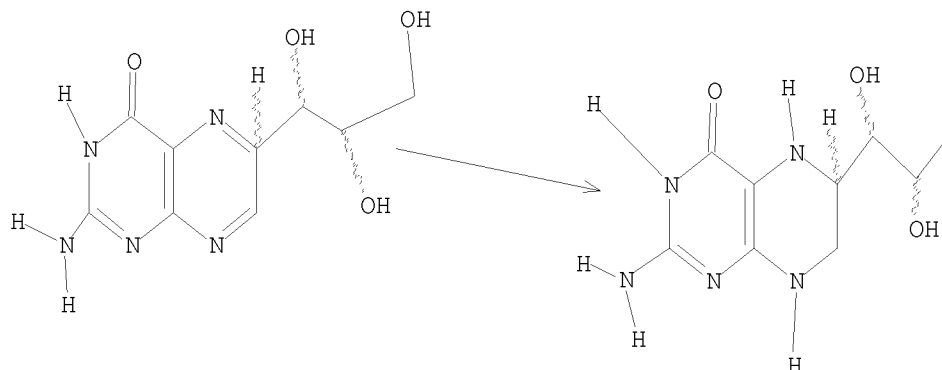
fragments assigned reactant/reagent role:
containing 11

L1 STRUCTURE UPLOADED

=> d 11

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 11 full

THE ESTIMATED SEARCH COST FOR FILE 'CASREACT' IS 122.65 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y

FULL SEARCH INITIATED 16:07:15 FILE 'CASREACT'

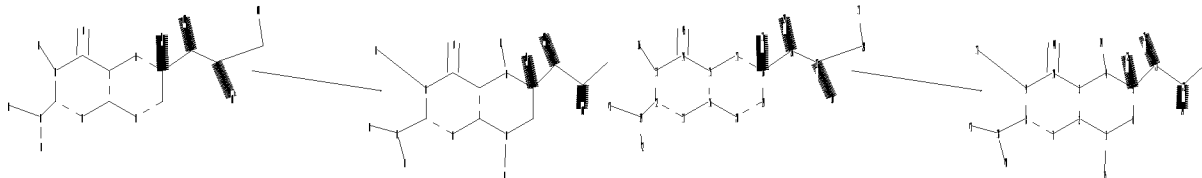
SCREENING COMPLETE - 29 REACTIONS TO VERIFY FROM 9 DOCUMENTS

100.0% DONE 29 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

L2 0 SEA SSS FUL L1 (0 REACTIONS)

=>

Uploading C:\Program Files\Stnexp\Queries\10579106unspecified bonds.str



chain nodes :

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
42 43 44 45

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

chain bonds :

<12/04/2007>

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1-35 4-34 5-21 5-32 8-38 9-37 10-44 12-39 13-36 14-45 18-26 18-33 21-22
21-25 22-23 22-24 26-27 26-29 27-28 27-30 28-31 38-40 38-41 39-42 39-43

ring bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10 11-12 11-16 12-13 13-14
14-15 15-16 15-17 16-20 17-18 18-19 19-20

exact/norm bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 8-38 9-10 10-44 11-12 11-16
12-13 12-39 13-14 14-15 14-45 15-16 15-17 16-20 17-18 18-19 19-20 21-25
22-24 26-29 27-30 28-31

exact bonds :

1-35 4-34 5-21 5-32 9-37 13-36 18-26 18-33 21-22 22-23 26-27 27-28
38-40 38-41 39-42 39-43

isolated ring systems :

containing 1 : 11 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS
28:CLASS 29:CLASS 30:CLASS 31:CLASS 32:CLASS 33:CLASS 34:CLASS 35:CLASS
36:CLASS 37:CLASS 38:CLASS 39:CLASS 40:CLASS 41:CLASS 42:CLASS 43:CLASS
44:CLASS 45:CLASS

fragments assigned product role:

containing 1

fragments assigned reactant/reagent role:

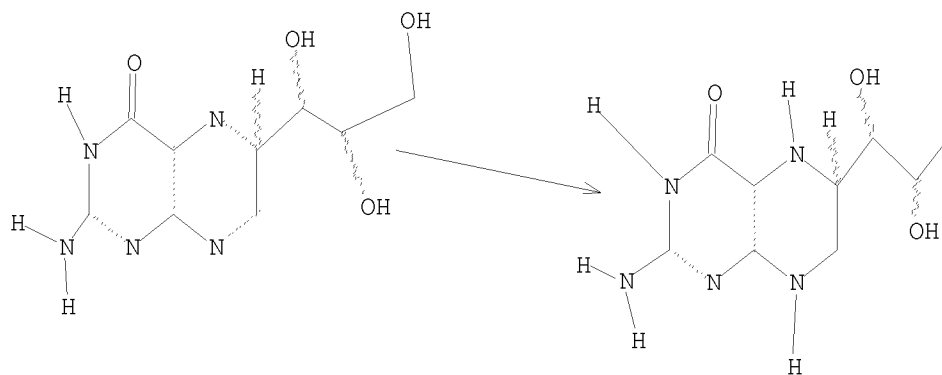
containing 11

L3 STRUCTURE UPLOADED

=> d 13

L3 HAS NO ANSWERS

L3 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 13 full

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THE ESTIMATED SEARCH COST FOR FILE 'CASREACT' IS 122.65 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y

FULL SEARCH INITIATED 16:08:50 FILE 'CASREACT'

SCREENING COMPLETE - 29 REACTIONS TO VERIFY FROM 9 DOCUMENTS

100.0% DONE 29 VERIFIED 0 HIT RXNS 0 DOCS

SEARCH TIME: 00.00.01

L4 0 SEA SSS FUL L3 (0 REACTIONS)

=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

247.22

247.92

FILE 'REGISTRY' ENTERED AT 16:09:12 ON 09 JUN 2009

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STRUCTURE FILE UPDATES: 8 JUN 2009 HIGHEST RN 1154048-98-2

DICTIONARY FILE UPDATES: 8 JUN 2009 HIGHEST RN 1154048-98-2

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TSCA INFORMATION NOW CURRENT THROUGH January 9, 2009.

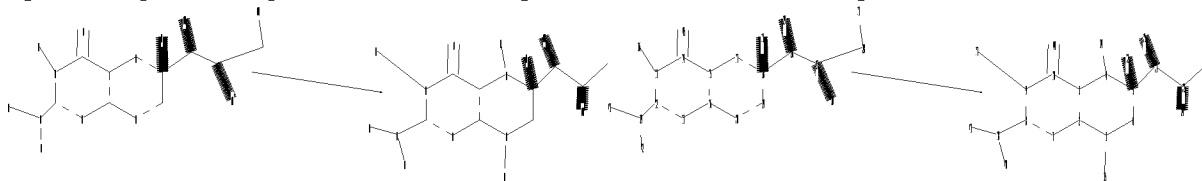
Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10579106unspecified bonds.str



chain nodes :

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
42 43 44 45

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

chain bonds :

1-35 4-34 5-21 5-32 8-38 9-37 10-44 12-39 13-36 14-45 18-26 18-33 21-22
21-25 22-23 22-24 26-27 26-29 27-28 27-30 28-31 38-40 38-41 39-42 39-43

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ring bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10 11-12 11-16 12-13 13-14
14-15 15-16 15-17 16-20 17-18 18-19 19-20

exact/norm bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 8-38 9-10 10-44 11-12 11-16
12-13 12-39 13-14 14-15 14-45 15-16 15-17 16-20 17-18 18-19 19-20 21-25
22-24 26-29 27-30 28-31

exact bonds :

1-35 4-34 5-21 5-32 9-37 13-36 18-26 18-33 21-22 22-23 26-27 27-28
38-40 38-41 39-42 39-43

isolated ring systems :

containing 1 : 11 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS
28:CLASS 29:CLASS 30:CLASS 31:CLASS 32:CLASS 33:CLASS 34:CLASS 35:CLASS
36:CLASS 37:CLASS 38:CLASS 39:CLASS 40:CLASS 41:CLASS 42:CLASS 43:CLASS
44:CLASS 45:CLASS

fragments assigned product role:

containing 1

fragments assigned reactant/reagent role:

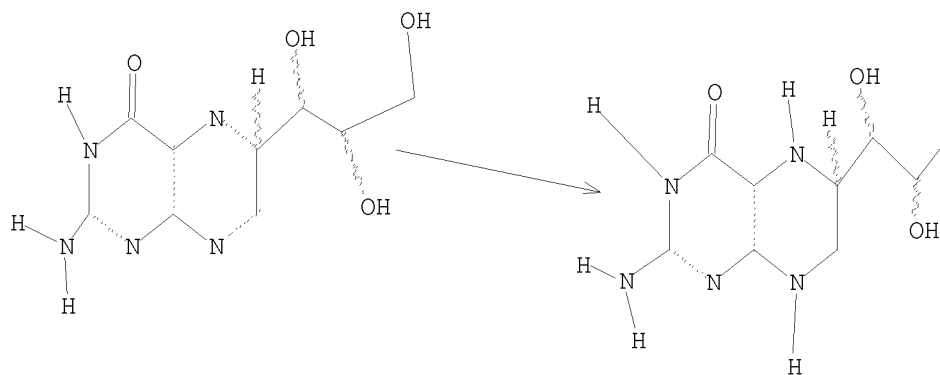
containing 11

L5 STRUCTURE UPLOADED

=> d 15

L5 HAS NO ANSWERS

L5 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 15 full

THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 185.40 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y

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MULTIPLE ROLE QUERIES ARE NOT ALLOWED IN A NON-REACTION FILE
COMMAND INTERRUPTED

If this message appears repeatedly, please notify the Help Desk.
Enter "HELP STN" for information on contacting the nearest STN Help
Desk by telephone or via SEND in the STNMAIL file.

=> file casreact

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	2.40	250.32

FILE 'CASREACT' ENTERED AT 16:12:07 ON 09 JUN 2009
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FILE CONTENT:1840 - 8 Jun 2009 VOL 150 ISS 24

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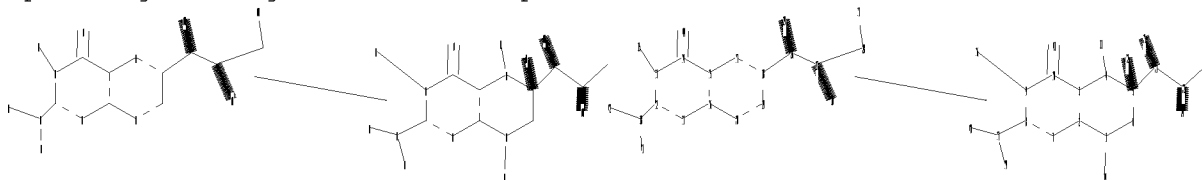
*
* CASREACT now has more than 16.5 million reactions *
*

CASREACT contains reactions from CAS and from: ZIC/VINITI database (1974-1999) provided by InfoChem; INPI data prior to 1986; Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich; organic reactions, portions copyright 1996-2006 John Wiley & Sons, Ltd., John Wiley and Sons, Inc., Organic Reactions Inc., and Organic Syntheses Inc. Reproduced under license. All Rights Reserved.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>

Uploading C:\Program Files\Stnexp\Queries\10579106last.str



chain nodes :

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
42 43 44

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

chain bonds :

<12/04/2007>

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1-34 4-33 5-21 5-32 8-37 9-36 10-43 12-38 13-35 14-44 18-26 21-22 21-25
22-23 22-24 26-27 26-29 27-28 27-30 28-31 37-39 37-40 38-41 38-42

ring bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10 11-12 11-16 12-13 13-14
14-15 15-16 15-17 16-20 17-18 18-19 19-20

exact/norm bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 8-37 9-10 10-43 11-12 11-16
12-13 12-38 13-14 14-15 14-44 15-16 15-17 16-20 17-18 18-19 19-20 21-25
22-24 26-29 27-30 28-31

exact bonds :

1-34 4-33 5-21 5-32 9-36 13-35 18-26 21-22 22-23 26-27 27-28 37-39
37-40 38-41 38-42

isolated ring systems :

containing 1 : 11 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS
28:CLASS 29:CLASS 30:CLASS 31:CLASS 32:CLASS 33:CLASS 34:CLASS 35:CLASS
36:CLASS 37:CLASS 38:CLASS 39:CLASS 40:CLASS 41:CLASS 42:CLASS 43:CLASS
44:CLASS

fragments assigned product role:

containing 1

fragments assigned reactant/reagent role:

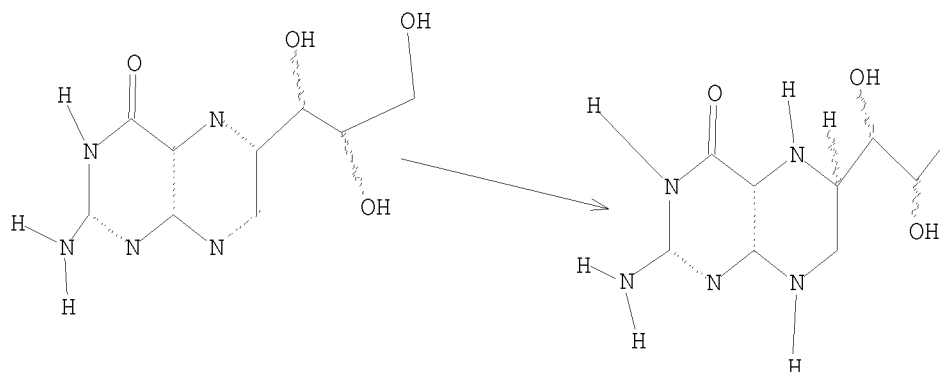
containing 11

L6 STRUCTURE UPLOADED

=> d 16

L6 HAS NO ANSWERS

L6 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 16 full

THE ESTIMATED SEARCH COST FOR FILE 'CASREACT' IS 122.65 U.S. DOLLARS

<12/04/2007>

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DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y

FULL SEARCH INITIATED 16:12:42 FILE 'CASREACT'

SCREENING COMPLETE - 29 REACTIONS TO VERIFY FROM 9 DOCUMENTS

100.0% DONE 29 VERIFIED 4 HIT RXNS 3 DOCS

SEARCH TIME: 00.00.01

L7 3 SEA SSS FUL L6 (4 REACTIONS)

=> d ibib abs hitstr tot

'HITSTR' IS NOT A VALID FORMAT FOR FILE 'CASREACT'

The following are valid formats:

ABS ----- GI and AB

ALL ----- BIB, AB, IND, RE, Single-step Reactions

APPS ----- AI, PRAI

BIB ----- AN, plus Bibliographic Data

CAN ----- List of CA abstract numbers without answer numbers

CBIB ----- AN, plus Compressed Bibliographic Data

DALL ----- ALL, delimited (end of each field identified)

IABS ----- ABS, indented with text labels

IALL ----- ALL, indented with text labels

IBIB ----- BIB, indented with text labels

IND ----- Indexing data

IPC ----- International Patent Classifications

ISTD ----- STD, indented with text labels

OBIB ----- AN, plus Bibliographic Data (original)

OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations

SIBIB ----- IBIB, no citations

MAX ----- Same as ALL

PATS ----- PI, SO

SCAN ----- TI and FCRD (random display, no answer number. SCAN
must be entered on the same line as DISPLAY, e.g.,
D SCAN.)

SSRX ----- Single-Step Reactions (Map, Diagram, and Summary for
all single-step reactions)

STD ----- BIB, IPC, and NCL

CRD ----- Compact Display of All Hit Reactions

CRDREF ----- Compact Reaction Display and SO, PY for Reference

FHIT ----- Reaction Map, Diagram, and Summary for first
hit reaction

FHITCBIB --- FHIT, AN plus CBIB

FCRD ----- First hit in Compact Reaction Display (CRD) format

FCRDREF ----- First hit in Compact Reaction Display (CRD) format with
CA reference information (SO, PY). (Default)

FPATH ----- PATH, plus Reaction Summary for the "long path"

FSPATH ----- SPATH, plus Reaction Summary for the "short path"

HIT ----- Reaction Map, Reaction Diagram, and Reaction
Summary for all hit reactions and fields containing
hit terms

OCC ----- All hit fields and the number of occurrences of the
hit terms in each field. Includes total number of

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HIT, PATH, SPATH reactions. Labels reactions that have incomplete verifications.

PATH ----- Reaction Map and Reaction Diagram for the "long path". Displays all hit reactions, except those whose steps are totally included within another hit reaction which is displayed

RX ----- Hit Reactions (Map, Diagram, Summary for all hit reactions)

RXG ----- Hit Reaction Graphics (Map and Diagram for all hit reactions)

RXL ----- Hit Reaction Long (Map, Diagram, Summary for all hit reactions)

RXS ----- Hit Reaction Summaries (Map and Summary for all hit reactions)

SPATH ----- Reaction Map and Reaction Diagram for the "short path". Displays all single step reactions which contain a hit substance. Also displays those multistep reactions that have a hit substance in both the first and last steps of the reaction, except for those hit reactions whose steps are totally included within another hit reaction which is displayed

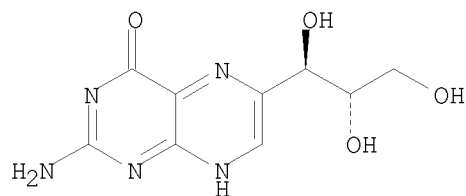
To display a particular field or fields, enter the display field codes. For a list of the display field codes, enter HELP DFIELDS at an arrow prompt (=>). Examples of combinations include: D TI; D BIB RX; D TI, AU, FCRD. The information is displayed in the same order as the specification. All of the formats, except CRD, CRDREF, FHIT, PATH, FPATH, SPATH, FSPATH, FCRD, FCRDREF, HIT, RX, RXG, RXS, SCAN, and OCC, may be used with the DISPLAY command to display the record for a specified Accession Number.

ENTER DISPLAY FORMAT (FCRDREF):.
THE ESTIMATED COST FOR THIS REQUEST IS 9.18 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:y

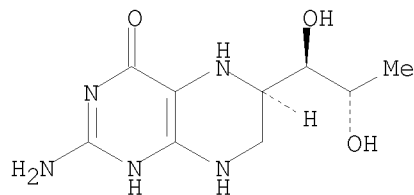
10/513699

L7 ANSWER 1 OF 3 CASREACT COPYRIGHT 2009 ACS on STN

RX(13) OF 15 - 3 STEPS



1. Me₂NCH(OEt)₂, DMF
2. PhSPh, PBu₃,
AcNMe₂
3.1. Ni, H₂, EtOH
3.2. HCl



stereoisomers
16%

REF: PCT Int. Appl., 2005049614, 02 Jun 2005

NOTE: 3) stereoselective, Raney nickel was used

CON: STEP(1) 6 hours, room temperature

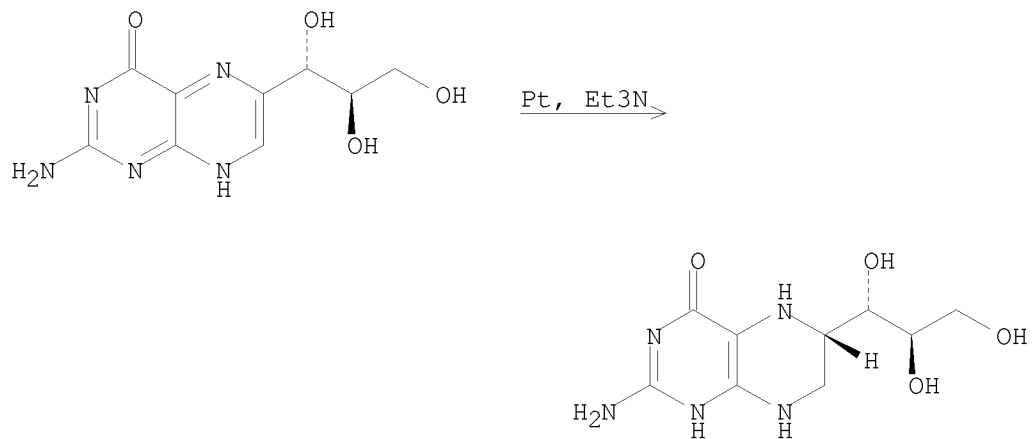
STEP(2.1) room temperature; 4 hours, room temperature

STEP(3.1) room temperature; 17 hours, room temperature, 5 bar

10/513699

L7 ANSWER 2 OF 3 CASREACT COPYRIGHT 2009 ACS on STN

RX(1) OF 1



2 HCl

REF: Jpn. Kokai Tokkyo Koho, 07188233, 25 Jul 1995, Heisei
NOTE: at 0-5.degree., 100 Kg/cm² for 20 min

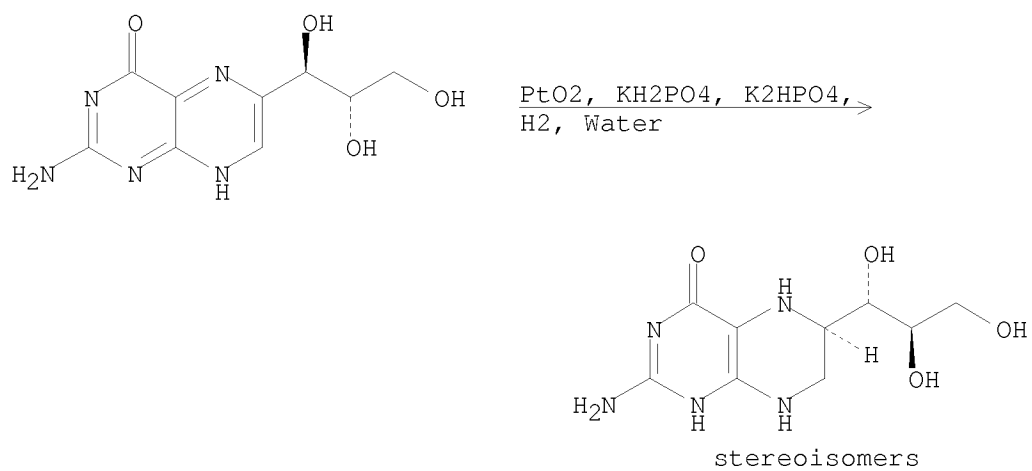
<12/04/2007>

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L7 ANSWER 3 OF 3 CASREACT COPYRIGHT 2009 ACS on STN

RX(6) OF 7



REF: Heterocycles, 23(12), 3115-20; 1985
NOTE: pH .gtoreq.10.8

<12/04/2007>

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=> s 17 full

THE ESTIMATED SEARCH COST FOR FILE 'CASREACT' IS 122.65 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y

FULL SEARCH INITIATED 16:13:45 FILE 'CASREACT'

SCREENING COMPLETE - 29 REACTIONS TO VERIFY FROM 9 DOCUMENTS

100.0% DONE 29 VERIFIED 4 HIT RXNS 3 DOCS

SEARCH TIME: 00.00.01

L8 3 SEA SSS FUL L6 (4 REACTIONS)

=> d ibib abs fhit tot

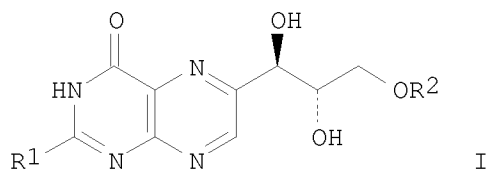
THE ESTIMATED COST FOR THIS REQUEST IS 15.63 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:y

10/513699

L8 ANSWER 1 OF 3 CASREACT COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 143:7534 CASREACT
TITLE: Preparation of tetrahydrobiopterin and analogs of
tetrahydrobiopterin
INVENTOR(S): Moser, Rudolf; Groehn, Viola; Schumacher, Andreas;
Martin, Pierre
PATENT ASSIGNEE(S): Biomarin Pharmaceutical Inc., USA; Merck Eprova A.-G.
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

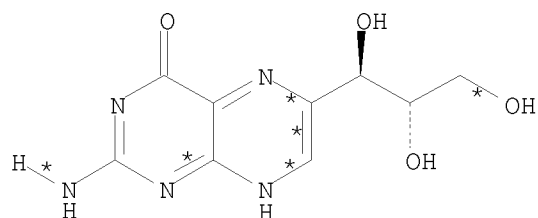
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005049614	A2	20050602	WO 2004-US38313	20041117
WO 2005049614	A3	20070308		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2004290692	A1	20050602	AU 2004-290692	20041117
CA 2545484	A1	20050602	CA 2004-2545484	20041117
EP 1776364	A2	20070425	EP 2004-819154	20041117
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, HR, LT, LV, MK, YU				
JP 2007534637	T	20071129	JP 2006-539994	20041117
US 20070244322	A1	20071018	US 2007-579106	20070216
PRIORITY APPLN. INFO.:				
			US 2003-520367P	20031117
			US 2003-520368P	20031117
			WO 2004-US38313	20041117
OTHER SOURCE(S): MARPAT 143:7534				
GI				



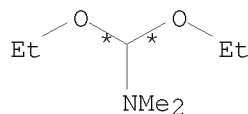
AB A process for the preparation of tetrahydrobiopterin and its analogs, e.g. I
[R1 = alkylamino, arylamino, alkylthio, alkylaminomethyleneimino, R2 = H;
R1 = alkylamino, alkylthio, Me2NCH:N, R2 = Me2CHEt2Si, (Me3CO)Ph2Si,
MePh2Si, Me3CMe2Si, Me3C(MeO)PhSi, (Me3C)2MeSi, etc.], from neopterin

and/or 6-substituted pterins with an improved yield and a high stereoselectivity is disclosed. Also disclosed herein are novel individual intermediates prepared in the preparation of tetrahydrobiopterin, such as selectively protected neopterin useful for the preparation of tetrahydrobiopterin. As an example, L-neopterin was reacted with DMF-acetal to give the 2-(dimethylamino)methylene derivative I (R1 = Me2NCH:N, R2 = H) (II). II was then silylated to I (R2 = Me3CPh2Si) which could be deprotected to I (R1 = NH2).

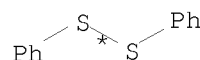
RX(13) OF 15 COMPOSED OF RX(1), RX(5), RX(6)
 RX(13) 2 A + 2 B + 2 N ==> R + S



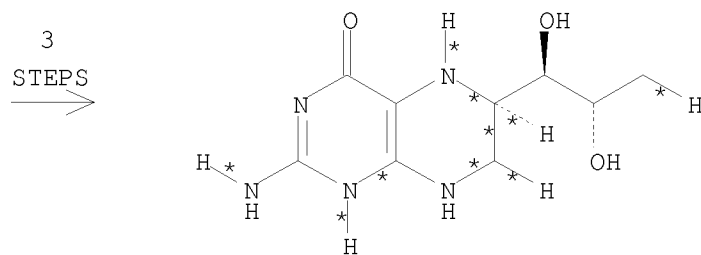
2 A



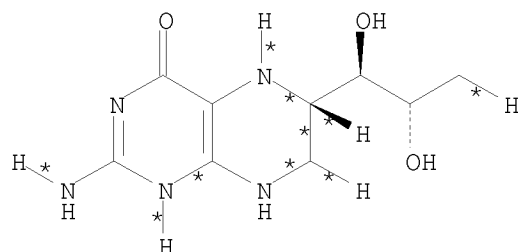
2 B



2 N



R
YIELD 16%



S
YIELD 9%

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RX(1) RCT A 2277-43-2, B 1188-33-6
PRO C 852547-43-4
SOL 68-12-2 DMF
CON 6 hours, room temperature

RX(5) RCT C 852547-43-4, N 882-33-7
RGT P 998-40-3 P Bu₃
PRO O 852547-49-0
SOL 127-19-5 AcNMe₂
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 4 hours, room temperature

RX(6) RCT O 852547-49-0

STAGE(1)
RGT T 1333-74-0 H₂
CAT 7440-02-0 Ni
SOL 64-17-5 EtOH
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 17 hours, room temperature, 5 bar

STAGE(2)
RGT U 7647-01-0 HCl

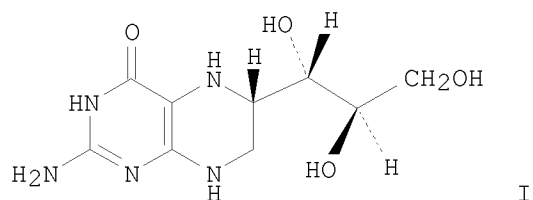
PRO R 62989-33-7, S 62961-57-3
NTE stereoselective, Raney nickel was used

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L8 ANSWER 2 OF 3 CASREACT COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 123:256436 CASREACT
TITLE: Preparation of (6S)-tetrahydro-D-neopterin via
catalytic hydrogenation of D-neopterin.
INVENTOR(S): Mochizuki, Naoki; Uemitsu, Nobuo
PATENT ASSIGNEE(S): Asahi Breweries Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

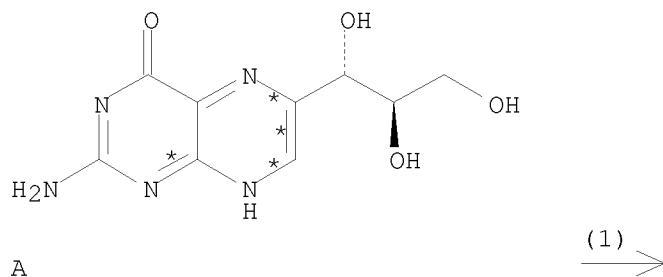
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07188233	A	19950725	JP 1993-346845	19931227
JP 2995448	B2	19991227		
PRIORITY APPLN. INFO.:			JP 1993-346845	19931227

GI

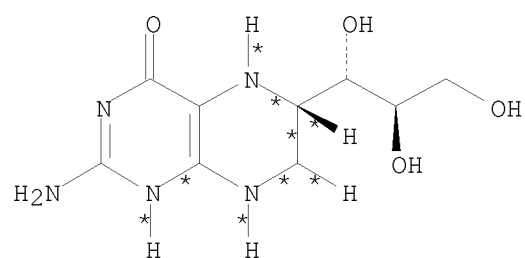


AB (6S)-tetrahydro-D-neopterin (I) is prepared via hydrogenation of D-neopterin under 80-120 Kg/cm² pressure, pH 10-13. Thus, D-neopterin, platinum, and Et₃N were placed in an autoclave and the reaction mixture was maintained at 0-5°, 100 Kg/cm² for 20 min to give, after treatment with concentrated HCl, I dihydrochloride.

RX(1) OF 1 A ==> B



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● 2 HCl

B

RX(1) RCT A 2009-64-5
 RGT C 121-44-8 Et3N
 PRO B 169219-49-2
 CAT 7440-06-4 Pt
 NTE at 0-5°, 100 Kg/cm2 for 20 min

<12/04/2007>

Erich Leese

10/513699

L8 ANSWER 3 OF 3 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 105:208658 CASREACT

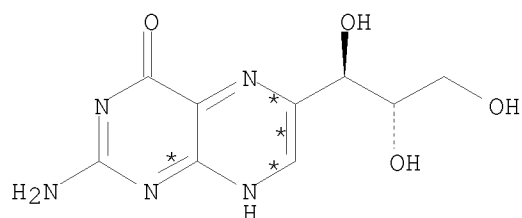
TITLE: Hydrogenation of biopterin and its analogs;
application for the convenient procedure of biopterin
cofactor and related 5,6,7,8-tetrahydropterins
AUTHOR(S): Matsuura, Sadao; Murata, Shizuaki; Sugimoto, Takashi
CORPORATE SOURCE: Coll. Gen. Educ., Nagoya Univ., Nagoya, 464, Japan
SOURCE: Heterocycles (1985), 23(12), 3115-20
CODEN: HTCYAM; ISSN: 0385-5414

DOCUMENT TYPE: Journal

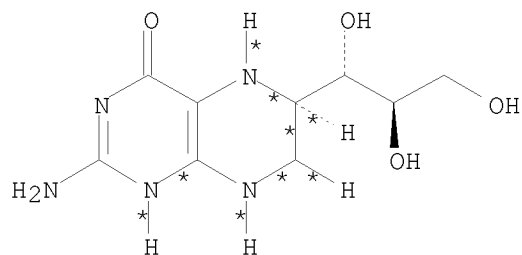
LANGUAGE: English

AB A large scale and stereoselective hydrogenation of biopterin to
(6R)-5,6,7,8-tetrahydrobiopterin was achieved by using PtO₂ catalyst at pH
11.8. The procedure was applied for various hydroxyalkylpterins such as
neopterin and diastereomers of biopterin.

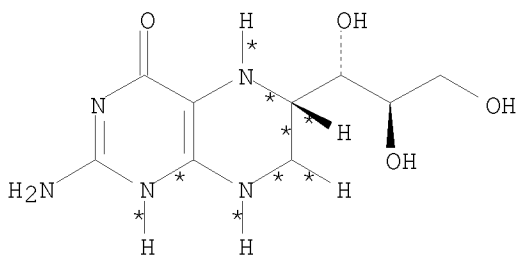
RX(6) OF 7 2 S ==> T + U



2 S



T



U

RX(6) RCT S 2277-43-2
RGT D 7778-77-0 KH₂PO₄, E 7758-11-4 K₂HPO₄, F 1333-74-0 H₂
PRO T 78737-51-6, U 78737-52-7
CAT 1314-15-4 PtO₂
SOL 7732-18-5 Water
NTE pH ≥10.8

<12/04/2007>

Erich Leese

10/513699

=> d his

(FILE 'HOME' ENTERED AT 16:06:12 ON 09 JUN 2009)

FILE 'REGISTRY' ENTERED AT 16:06:33 ON 09 JUN 2009

FILE 'CASREACT' ENTERED AT 16:06:38 ON 09 JUN 2009

L1 STRUCTURE UPLOADED
L2 0 S L1 FULL
L3 STRUCTURE UPLOADED
L4 0 S L3 FULL

FILE 'REGISTRY' ENTERED AT 16:09:12 ON 09 JUN 2009

L5 STRUCTURE UPLOADED

FILE 'CASREACT' ENTERED AT 16:12:07 ON 09 JUN 2009

L6 STRUCTURE UPLOADED
L7 3 S L6 FULL
L8 3 S L7 FULL

=> log y

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

272.51

522.83

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

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-2.34

STN INTERNATIONAL LOGOFF AT 16:14:58 ON 09 JUN 2009